

## Zheyuan (Charles) Xu

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*Computer engineer student and inventor looking for summer 2021 software engineering internship*

### EDUCATION

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University of Washington (Master of Science in Computer Science and System) **Sep 2020-Dec 2021**

Georgia Institute of Technology (Electrical Engineering & Computer Science, Bachelor of Science) **Aug 2015-May 2020**

### RESEARCH EXPERIENCES

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**GTSR (Georgia Tech System Research) Lab** **Jan 2020-Aug 2020**

*Research Assistant*

- Worked on building GT-MAB (miniature aerial blimp) 2.0, participated in major system and mechatronics design, as well as production-level firmware development in **C++** with well-written documentation.
- Developed an assistive ground station for debugging and testing (both in **MATLAB** and **C#**).
- Improved communication link between blimp and ground station, lowered latency by more than **150** times.
- Helped in achieving 6 DOF stabilization on the blimp, co-authored publication in review.
- Worked on refurbishing and automating the OSV (omni-directional surface vehicle), integrated RTK (real-time kinematic) GPS modules, enabling centimeter-level accuracy in position and heading measurements under complex electromagnetic environments.

### PATENTS

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Ultra-lightweight Low Latency Flight Control System

*A low-power, low-latency, lightweight headless flight control system suite for indoor robotics systems*

- Co-inventor, participated in system and firmware development, reduced its weight to within 0.5 grams
- <https://licensing.research.gatech.edu/technology/flight-control-system-miniature-aerial-robots>

Highly Effective Motion Marker for Small Aerial Robots

*A robust, lightweight, low-power marker that eliminates the need for external light sources in indoor motion capture systems.*

- Co-inventor, electronic design and verification
- <https://licensing.research.gatech.edu/technology/highly-effective-motion-capture-marker-small-aerial-robots>

### SKILLS

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Languages: Python, Java, C#, C, C++, JAVASCRIPT, CSS, HTML, SQL, Swift, Objective-C, Dart, MATLAB

Frameworks: Visual Studio, Unity, Git, Firebase, Android Studio, Xcode, MATLAB, Three.js, RabbitMQ, Solidworks, Eagle CAD, Pytorch, Tensorflow, Blender, Flutter, React, ROS, BigQuery, EC2, CockroachDB

Platforms: Windows 7/8/10, MacOS, Linux

### PERSONAL PROJECTS

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**FERM (Firefighting Emergency Resource Management)** **Mar 2021**

*A resource management tool that assists firefighters in resource distribution*

- Designed the frontend animation in **Three.js** & **WebGL**, **HTML** and **CSS**
- Integrated the backend in **Azure VM** with **Azure SQL** Server for real-time information updates

**AdaEye, -winner for Best Use of Google Cloud, MakeHarvard 2021** **Feb 2021**

*A voice-controlled navigation and cognitive package for visually impaired*

- Integrated the mechanical gimbal with **Arduino** board and **Jetson Nano**, implemented the user interface in **Swift**
- Deployed **RabbitMQ** in **Azure** cloud server, enabling real-time delivery of control commands
- Enabling voice question and answer by integrating **GPT-3** bot in backend

**Neomap, -winner for Best Use of Google Cloud and Radar.io Most Creative Award, MLH New Year New Hack 2021** **Jan 2021**

*An augmented-reality app for share your new year resolution and relive your older memories*

- Integrated hand gesture detection with **Reality Kit**, allowing real-time keyboard-less reaction to user posts
- Integrated **Firebase** for storing user information, user posts, and user authentication

**VCart** **Dec 2020**

*A mixed-reality, remote shopping experience on your cell phone*

- Experimented with Apple's Vision and machine learning framework from **WWDC20**, optimized the code for better performance with **ARKit**
- Implemented customer recommendation by storing shopping history in **Firebase**